**Chapter 9**

**I. Heredity**

A. Transmission of genetic information from one

generation to the next.

1. Chromosomes, DNA, and Genes.

B. Genetic events are based on chance.

C. Probability measures the chance of genetic events.

**II. Mendelian Genetics**

A. Gregor Mendel (1822 -1884): Experiments with pea

plants.

1. Example of results.

P1  Round seeds x Wrinkled seeds

(cross pollination)

F1  100% Round seeds

(self pollination)

F2 75% Round seeds

25% Wrinkled seeds

B. Explanation of results 🡪 based on three principles.

**1. Dominance** – genes occur in pairs; different

forms of a gene are called **alleles**:

a. Dominant

b. Recessive

**2. Segregation** – two alleles of a gene are separated

during gamete formation (meiosis).

**3. Independent Assortment** – genes for each trait

are inherited independently of other genes.

**III. Genetics Cross Problems**

A. Utilizing principles of genetics and statistics to predict

the genetic makeup of offspring.

B. Terminology

1. Phenotype – the observable (testable) effect of

the genes; i.e. Round; Wrinkled

2. Genotype – the genetic makeup (genes) of an

organism; i.e. RR; rr

3. Homozygous (pure) – when both alleles are the

same; i.e. RR rr

4. Heterozygous (hybrid) – when both alleles are

different; i.e. Rr

5. Punnett square – represents the chances of what

the offspring will be.

C. Symbols

1. P1 – first parental cross

2. P2 – second parental cross

3. F1 – first generation (filial)

4. F2 – second generation

5. x – crossed; mated; married

6. – male

7. – female

D. Types of cross problems

1. Monohybrid

2. Dihybrid